CONDITION

Hydrocodone and acetaminophen overdose

Hydrocodone and acetaminophen overdose is poisoning that can dangerously slow breathing and damage the liver.

WHAT IT IS
Combined opioid and acetaminophen poisoning

BODY SYSTEM
Breathing, nervous system, and liver

MAIN SYMPTOMS
Slow breathing, extreme sleepiness, nausea, abdominal pain

WHAT CAUSES IT
Too much hydrocodone and acetaminophen medicine

HOW IT IS DIAGNOSED
Blood acetaminophen level, liver tests, and clinical assessment

MAIN TREATMENT
Breathing support, naloxone, and N-acetylcysteine

CAN IT BE CURED?
Sometimes - organ damage may not reverse

IS IT AN EMERGENCY?
Yes - suspected overdose needs immediate assessment

LONG-TERM OUTLOOK
Often full recovery when treated promptly

Overview

Hydrocodone and acetaminophen are combined in some prescription pain medicines. Hydrocodone is an opioid like oxycodone or morphine . It reduces pain but can also slow the brain signals that control breathing. Acetaminophen, also called paracetamol in many countries, reduces pain and fever. Too much can injure the liver.

An overdose may happen after one large amount or after taking more than recommended over several hours or days. It can be accidental or intentional. The two ingredients cause different problems, so treatment must address both.

Hydrocodone poisoning can cause life-threatening breathing problems within a short time. Acetaminophen poisoning may cause few or no early symptoms even while liver injury is developing. For this reason, feeling well does not make it safe to wait.

A suspected overdose is an emergency. In the United States, call 911 and Poison Help at 1-800-222-1222 . Elsewhere, call your local emergency service or poison centre. Do not wait for symptoms or try to calculate the risk on your own.

Symptoms

Hydrocodone mainly affects alertness and breathing. Signs of opioid poisoning include:

Very small pupils are common but are not always present. A person who cannot be woken or who is breathing abnormally should be treated as having a possible opioid overdose.

Early acetaminophen poisoning may cause no symptoms. When symptoms occur, they may include nausea, vomiting, sweating, tiredness, loss of appetite, or general discomfort. These can seem mild and do not show how much liver injury may follow.

Over the next one to three days, liver injury may cause pain or tenderness under the right ribs, worsening nausea, yellow skin or eyes, dark urine, confusion, or unusual bleeding. Treatment should begin before these later signs appear whenever possible.

- Slow, shallow, irregular, or stopped breathing
- Extreme sleepiness or inability to wake
- Very small pupils
- Limpness, unusual snoring, choking, or gurgling
- Pale, blue, or grey lips, fingertips, or skin
- A slow heartbeat, low blood pressure, or cool skin

Causes and risk factors

Overdose occurs when the body receives more hydrocodone, acetaminophen, or both than it can safely handle. This may result from taking too many tablets at once, repeating doses too soon, or continuing to take extra medicine because pain has not improved.

Acetaminophen is found in many prescription and non-prescription products. Someone may take a hydrocodone combination medicine along with a cold, flu, sleep, headache, or pain product without realizing that both contain acetaminophen.

Hydrocodone is more likely to stop or severely slow breathing when combined with alcohol, sleeping medicines, anti-anxiety medicines, other opioids, or other drugs that cause drowsiness. A recent return to opioid use after a break can also be dangerous because opioid

tolerance may have fallen.

Poor nutrition, prolonged fasting, heavy alcohol use, and existing liver disease can affect the risk of acetaminophen injury. Older adults and people with lung disease may be more vulnerable to the breathing effects of opioids. Children can be poisoned by even a small number of adult tablets.

Intentional overdose can occur during a mental health crisis. It requires emergency medical care even if the amount is uncertain or the person currently feels well.

Diagnosis

Emergency clinicians first assess breathing, alertness, heart rate, blood pressure, and oxygen levels. Information about the product, tablet strength, amount taken, and time of ingestion is useful, but treatment does not have to wait if those details are unknown.

A blood acetaminophen level is an important test. After a single overdose taken at a known time, clinicians may compare a level drawn at least four hours later with a treatment chart called the Rumack-Matthew nomogram. This chart estimates the likelihood of liver injury.

The chart cannot reliably assess repeated extra doses, an unknown ingestion time, or exposure spread over many hours. In those situations, clinicians use the acetaminophen level, liver tests, symptoms, and history together. Tests may be repeated because opioid medicines can slow stomach emptying and delay absorption.

Other blood tests check liver function, blood clotting, kidney function, blood sugar, and acid levels. An electrocardiogram may be used to check the heart. Drug screening can provide supporting information, but a negative screening test does not always rule out hydrocodone exposure.

Treatment and management

Treatment begins with protecting breathing and circulation. Oxygen, assisted breathing, or a breathing tube may be needed if breathing is dangerously slow or has stopped.

Naloxone is an opioid reversal medicine. It can restore breathing after hydrocodone poisoning and may be given through the nose, into a muscle, or into a vein. More than one dose may be needed. Its effects can wear off before hydrocodone has left the body, so emergency observation remains necessary even when the person wakes up.

Naloxone does not treat acetaminophen poisoning. That requires a medicine called

N-acetylcysteine , often shortened to NAC. NAC helps the liver safely process the toxic breakdown product of acetaminophen. It works best when started early, but it can still help after liver injury has begun. Clinicians may start it before all test results are available when the risk is significant.

Activated charcoal may reduce absorption in selected recent overdoses. It is used only under medical supervision when it can be given safely. Do not use charcoal products at home and do not make the person vomit.

Hospital monitoring continues until breathing is stable and acetaminophen levels and liver tests show that treatment can safely stop. Severe liver failure may require care at a specialist liver or transplant centre. A small number of people with irreversible liver failure need a liver transplant.

If the overdose was intentional, care also includes a mental health assessment and a plan for immediate safety and ongoing support. If opioid dependence or opioid use disorder is involved, treatment and harm-reduction services can help reduce the chance of another overdose.

Complications

Severely slowed breathing can deprive the brain and other organs of oxygen. This may lead to brain injury, abnormal heart rhythms, kidney injury, or death. Vomit may enter the lungs when someone is very drowsy, causing aspiration and sometimes pneumonia.

Acetaminophen can cause acute liver failure. Possible effects include low blood sugar, poor blood clotting, internal bleeding, confusion caused by toxin buildup, brain swelling, kidney failure, and failure of several organs.

Long periods of unconsciousness can also cause pressure injuries and muscle breakdown. Damaged muscle releases substances that may harm the kidneys.

Prompt treatment greatly lowers the chance of serious complications, but an early lack of symptoms does not reliably predict the outcome.

Prevention

Many overdoses can be prevented. Take hydrocodone and acetaminophen only as shown on the prescription label. Do not take extra doses or shorten the time between doses unless the prescriber has changed the instructions.

Check every medicine label for acetaminophen , paracetamol , or abbreviations such as APAP .

Avoid taking more than one acetaminophen-containing product unless a clinician or pharmacist has confirmed that the combination is appropriate. Do not exceed the limit on the label or the lower limit provided for you by a healthcare professional.

Do not combine hydrocodone with alcohol, other opioids, sleeping medicines, or sedating drugs unless the combination has been specifically reviewed. Tell a pharmacist about all prescription medicines, non-prescription products, and supplements you use.

Store opioids in a locked place, away from children and visitors. Never share them. Use a medicine take-back programme for tablets that are no longer needed.

People who take opioids, and those close to them, can learn how to recognize an overdose and use naloxone. Keep naloxone where it can be reached quickly and replace it when it expires. Having naloxone does not replace calling emergency services.

Living with it and what to expect

Many people treated before major liver or brain injury recover fully. Hydrocodone's effects may improve after naloxone, but sleepiness and slow breathing can return. Monitoring continues until the opioid risk has passed.

NAC treatment may continue for hours or longer, guided by acetaminophen levels, liver tests, and blood-clotting results. The treatment period is not based only on how the person feels.

If liver tests become abnormal, recovery may take days to weeks. Follow-up blood tests may be needed after discharge to confirm that liver function is returning toward normal. More severe liver or kidney injury can require longer recovery and specialist follow-up.

After an uncomplicated recovery, the overdose itself does not usually become a chronic condition. Lasting changes are more likely when there has been major liver failure, kidney failure, or prolonged lack of oxygen.

Routine follow-up may include reviewing all medicines, deciding whether an acetaminophen-containing opioid is still appropriate, and arranging pain, addiction, or mental health support. Follow the discharge plan about when medicines, including acetaminophen and alcohol, can be used again.

When to get medical help

Call emergency services now if someone may have taken an overdose and has slow or abnormal breathing, cannot be woken, has collapsed, is having a seizure, or has blue or grey lips

or skin. Give naloxone if it is available. Follow the emergency dispatcher's instructions for rescue breathing or CPR.

Place an unconscious but breathing person on their side if this can be done safely. Stay with them. Do not give food or drink, put them in a bath or shower, or try to make them vomit.

Contact a poison centre or emergency service immediately after any suspected excess dose, even if there are no symptoms. Keep the medicine container or a photograph of its label available. Do not delay the call while trying to count missing tablets.

After discharge, seek urgent medical advice for worsening vomiting, right-sided upper abdominal pain, yellow skin or eyes, dark urine, increasing sleepiness, confusion, or unusual bleeding.

Routine follow-up is appropriate when the person is stable and following the hospital's discharge plan. It is used to repeat blood tests, review medicines, and address pain, substance use, or mental health needs.

Common questions

How much hydrocodone and acetaminophen causes an overdose?

There is no single amount that is safe to use as a home cutoff. Risk is affected by the product strength, timing, other medicines, opioid tolerance, nutrition, and liver or lung health. If more than prescribed or labelled was taken, contact a poison centre immediately.

Can I feel fine after taking too much acetaminophen?

Yes. Acetaminophen poisoning may cause no early symptoms. Liver injury can develop later, so prompt blood testing and assessment are important even when you feel normal.

Does naloxone treat the whole overdose?

No. Naloxone reverses the opioid effects of hydrocodone, especially slowed breathing. It does not prevent acetaminophen-related liver injury. Emergency care is still needed after naloxone works.

What should I do if I accidentally took an extra dose?

Do not take another dose until you have received advice. Call a poison centre and have the medicine label, amount taken, and approximate times ready. Call emergency services for drowsiness, abnormal breathing, collapse, or any intentional overdose.

Should I make myself vomit?

No. Vomiting does not reliably remove the medicine and can cause choking, especially if hydrocodone is making you sleepy. Wait for instructions from emergency services or a poison

specialist.

How long does recovery take?

Some people without organ injury leave hospital after monitoring and treatment. Liver injury may take days or weeks to improve, while severe liver, kidney, or brain injury can require prolonged care. Follow-up testing helps show whether recovery is complete.

Sources

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